

Course Information

Course Number/Section:	HMG 6332 / OPRE 6354 Section OW1
Course Title:	Quality Improvement in Healthcare
Term:	Spring 2025
Course Modality:	ONLINE
Instructor:	Dr. Kannan Ramanathan
Virtual Office Hours:	Email for appointment
Email:	kxr087000@utdallas.edu

Course Description

This course uses the Lean Six Sigma framework to discuss how healthcare organizations can improve the quality of care and implement continuous improvement in the healthcare environment. Lean manufacturing/service focuses on improving the speed of a process and the elimination of waste, primarily by reducing non-value-added steps. Six Sigma deals with improving consistency and the effectiveness with which a process meets customer requirements. Concepts from the combined framework – Lean Six Sigma – are increasingly being applied to healthcare processes.

About Certification in Lean Six Sigma

Please note that this is NOT a project-based course, i.e., the course requirements do not include the completion of a project. If you complete HMG 6320 (The American Healthcare System), HMG 6321 (Strategic Leadership of Healthcare Organizations), HMG 6323 (Healthcare Informatics in Healthcare), in addition to this course (HMG 6332), and secure a minimum 'B' grade in each course, you qualify for a Lean Six Sigma Yellow Belt Certificate. You **must** formally apply to, and be accepted into, the Yellow Belt Certificate Program, followed by applying 'to graduate' to be awarded this certificate. All academic certificate programs follow the same application and admission processes as graduate degree programs. All dates and deadlines can be on the UTD Academic Calendar. Note also that there are penalties (fees) if you do not apply for admission and graduation on a timely basis. If you have questions about the Yellow Belt, please contact Dr. Thurgood. If you have questions about the Green Belt, please contact Dr. Ramanathan.

Students Learning Objectives/Outcomes

At the conclusion of this course, the student should:

- Understand concepts of Lean and Six Sigma as applied to healthcare processes
- Develop analytical thinking and problem-solving capability
- Cultivate ability to apply concepts and techniques to process engineering in healthcare
- Be familiar with tools in process engineering
- Express your ideas and thoughts clearly and concisely

JSOM Virtual Learning Launchpad

- To access your course content, complete the JSOM Virtual Learning Launchpad in eLearning, follow instructions shown at [Student JSOM Virtual Learning Launchpad Instructions](#)
- The certificate must be completed each academic year and uploaded each semester for all synchronous / asynchronous courses. The Launchpad will be available before your course starts.

Required Materials

1. Lean Six Sigma for Healthcare Professionals by Kannan Ramanathan
 - This book is available for purchase only from the UTD Bookstore
2. In addition, some readings will need to be purchased (see list at end of syllabus)

Quizzes and Graded Assignments

Assignment	All Day CT On	Scope of quiz	Time	Number of questions	% of grade
			(minutes)		
Mid-Term (closed book)	Wed, Mar 12 To Fri, Mar 14	All topics up to (but not including) Basic Statistics. All questions are multiple choice. Each question carries one point.	75	75 MCQ	37%
Final (closed book)	Wed, May 07 To Fri, May 09	All topics, with emphasis on Basic Statistics and Six Sigma. All questions are multiple choice. Each question carries one point.	100	75 MCQ	41%
Assessment Quiz	Wed, Apr 30 ONLY	<u>You have questions on both Lean and Six Sigma</u>	10	10 MCQ	2%
Assessment Quiz	<u>The Assessment Quiz is NOT proctored. You do NOT need to book time with the Testing Center.</u>				
Statistics Practice	You can get up to 5% based on proportion of right answers to questions in three practice assignments: Practice Basic Statistics, Practice Box and Whisker Plots, Practice Normal Distribution.				5%
Quizzes (open book)	Quizzes differ with respect to number of questions, time available, and deadlines.				15%
	No proctoring is required.				
	<u>Content from these quizzes is not included in the mid-term and final.</u>				
Extra Credit Opportunities	Extra credit of up to two marks (for attending healthcare management events and/or other activities.) One mark (not percentage point) for each event attended will be added to final exam marks for a maximum of two marks for one course. Email from organizer of event is required. These points are solely at the discretion of the Professor.				
	Other extra credit opportunities <u>may</u> be announced during the course. It is possible that such assignments will need you to come <u>in person</u> on a Saturday morning to work on the assignment.				

Mid-term and final MUST be taken at the UTD Testing Center (or another approved Testing Center) on the days specified (whenever you can make a reservation). Note that the UTD Testing Center is not open 24/7. **If you need to have a make-up mid-term or final for any reason, there will be a deduction of 10% points. The make-up quiz may be different (in both format and grading criteria) from the scheduled quiz. The 10% penalty will apply to the grade for the entire course. (e.g., if your course grade is 95% and you have a 10%-point penalty, your course grade will be 85%).**

Exams

- You need to take your Mid-term and Final during the scheduled window.
- If you need to have a make-up exam outside the scheduled window – for whatever reason - **there will be a deduction of 10% points** from the earned grade for that exam
- The make-up exam may be different (in both format and grading criteria) from the scheduled quiz
- The Mid-term will cover all material from the beginning to the end of discussions on Lean
- The Final will cover all material on Six Sigma, Basic Statistics, and may also have some questions regarding differences between Lean and Six Sigma
- Open-book quizzes do not need proctoring (i.e., do not need to be taken at a testing center)
- Mid-term and Final exams MUST be in person at the UTD Testing Center, or another UTD approved testing center
- See: <https://ets.utdallas.edu/testing-center/students/>
<https://ets.utdallas.edu/testing-center/distance-learning/>
<https://dox.utdallas.edu/list15802>

Note that ALL proctored exam applications for a testing center other than UTD must be submitted and received by the UT Dallas Testing Center **at least 10 business days** prior to the exam date. The UT Dallas Testing Center will adhere to the 10-business day deadline submission, **no exceptions**. For questions about remote testing – please contact tcdl@utdallas.edu.

Grading Criteria

Grading criteria may vary from those for other courses or even this same course in other semesters.

GRADES WILL BE BASED ON:

POINTS ABOVE/UPTO	Letter Grade
0%	F
72%	C
77%	C+
80%	B-
83%	B
86%	B+
90%	A-
93%	A

Note: Grades are NOT curved

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same: *"As a Comet, I pledge honesty, integrity, and service in all that I do."*

Links to eLearning resources

- [Getting Started with eLearning](#)
- [Student eLearning Tutorials](#)
- [eLearning Support Center](#)

Links for Proctored Exams

- [UTD Testing Center](#)
- [Distance Learning Proctored Exams](#)

Other useful links

- For students with disabilities - [link to accommodations](#)
- Academic Support Resources - [academic support resources](#)
- University policies - [syllabus policies](#)

READ THE SYLLABUS IN ITS ENTIRETY

Professor will not respond to questions if the information is already provided in the syllabus.

Open-book Quizzes

PLEASE NOTE:

- YOU MUST SUBMIT THE FOLLOWING OPEN-BOOK QUIZZES BEFORE THE DEADLINE
- ONLY ONE SUBMISSION IS ALLOWED
- DO NOT SUBMIT ACCIDENTALLY
- DO NOT WAIT TILL THE LAST MINUTE TO SUBMIT – DEADLINES WILL **NOT** BE EXTENDED

Reading	Complete quiz by
Q1 Making a dent in medical waste	Monday, February 3, 2025
Q2 Factory Efficiency Comes to the Hospital	Monday, February 10, 2025
Q3 Mistake-Proofing Healthcare - Why Stopping Processes Might be a Good Start	Monday, February 17, 2025
Q4 HealthCare Quality - Accountability	Monday, March 3, 2025
Q5 Applying the Lean principles of the Toyota Production System to Reduce	Monday, March 10, 2025
Q6 Writing The New Playbook For US Healthcare	Monday, March 31, 2025
Q7 The Impact of Six Sigma Improvement-A Glimpse into the Future of Statistics	Monday, April 7, 2025
Q8 Managing Quality with Process Control	Monday, April 14, 2025
Q9 The Normalization of Deviance in Healthcare Delivery	Monday, April 21, 2025

Readings for Q3, Q8, Q9 can be purchased from the link below.

<https://hbsp.harvard.edu/import/1200743>

This link is available only till February 9, 2025

Other Readings

These and other readings are available as follows.

For copyright reasons you will need to obtain these on your own.

Content from these readings is not included in the mid-term and final exams.

- Q1** In a World of Throwaways, Making a Dent in Medical Waste
Yingfei Chen, The New York Times, July 5, 2010
- Q2** Factory Efficiency Comes to the Hospital
Julie Weed, The New York Times, July 10, 2010
- Q3** Mistake-Proofing Healthcare
John R. Grout and John S. Toussaint, Business Horizons (2010), 53, 149-156
(Purchase from link above)
- Q4** HealthCare Quality - From Data to Accountability
Mary Darby, National Health Policy Forum, February 1998
https://hsr.himmelfarb.gwu.edu/cgi/viewcontent.cgi?article=1002&context=sphhs_centers_nhpf
- Q5** Applying the Lean principles of the Toyota Production System to reduce wait times in the ED
David Ng, Gord Vail, Sophia Thomas, Nicki Schmidt, CJEM 2010; 12(1):50-7
- Q6** Writing the New Playbook for U.S. Health Care: Lessons from Wisconsin
John Toussaint, Health Affairs 28, no.5 (2009):1343-1350

- Q7** The Impact of Six Sigma Improvement-A Glimpse into the Future of Statistics
Gerald J. Hahn, William J. Hill, Roger W. Hoerl and Stephen A. Zincograph
The American Statistician, Vol. 53, No. 3 (Aug. 1999), pp. 208-215
- Q8** Managing Quality with Process Control
Roy D. Shapiro, Harvard Business Publishing, Core Curriculum Readings, 8020-HTM-ENG, Sep 10, 2013
(Purchase from link above)
- Q9** The Normalization of Deviance in Healthcare Delivery
John Banja, Harvard Business Publishing, Mar 15, 2010, #: BH375-PDF-ENG (Purchase from link above)